



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

### PERMIT DETAILS

Area Permit Number: 8462/1  
File Number: DWERVT2666  
Duration of Permit: 9 July 2019 to 9 July 2021

### PERMIT HOLDER

BHP Billiton Nickel West Pty Ltd

### LAND ON WHICH CLEARING IS TO BE DONE

Lot 89 on Deposited Plan 411084, Kwinana Beach and East Rockingham

### AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 2.5 hectares of native vegetation within the area hatched yellow on attached Plan 8462/1.

### CONDITIONS

#### 1. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

#### 2. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

#### 3. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit; and
- (e) actions taken to minimise the risk of the introduction and spread of weeds in accordance with condition 2 of this Permit.

#### 4. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 3 of this Permit, when requested by the *CEO*.

## DEFINITIONS

The following meanings are given to terms used in this Permit:

**CEO** means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

**dieback** means the effect of *Phytophthora* species on native vegetation;

**fill** means material used to increase the ground level, or fill a hollow;

**mulch** means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

**weed/s** means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;  
or
- (b) Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
- (c) not indigenous to the area concerned.

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Ryan Mincham  
MANAGER  
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20  
of the Environmental Protection Act 1986*

14 June 2019

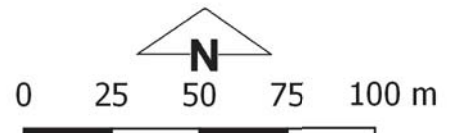


# Plan 8462/1

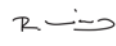


## Legend

-  CPS areas approved to clear
-  Cadastre
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-  Local Government Authorities
- Image



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Officer with delegated authority under Section 20 of the  
*Environmental Protection Act 1986*



**GOVERNMENT OF  
WESTERN AUSTRALIA**





## 1. Application details

### 1.1. Permit application details

Permit application No.: 8462/1  
Permit type: Area Permit

### 1.2. Applicant details

Applicant's name: BHP Billiton Nickel West Pty Ltd

### 1.3. Property details

Property: Lot 89 on Deposited Plan 411084  
Local Government Authority: City of Kwinana and City of Rockingham  
DWER Region: Greater Swan  
DBCA District: Swan Coastal  
Localities: Kwinana Beach and East Rockingham

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
2.5		Mechanical Removal	Effluent storage tanks and supporting infrastructure

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 14 June 2019

Reasons for Decision: The clearing permit application was received on 12 April 2019 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is not likely to be at variance to any of the clearing principles.

The Delegated Officer determined that the proposed clearing may increase the spread of weeds and dieback into nearby vegetation. To minimise this impact, a condition has been placed on the permit requiring the implementation of weed and dieback management measures.

In determining to grant a clearing permit subject to conditions, the Delegated Officer considered that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

## 2. Site Information

**Clearing Description:** The application to clear 2.5 hectares within Lot 89 on Deposited Plan 411084, Kwinana Beach and East Rockingham, for the purpose of constructing effluent storage tanks, access and laydown areas at BHP Billiton Nickel West Pty Ltd's (BHP NiW) Kwinana Nickel Refinery (KNR). The BHP NiW KNR is located within the Kwinana Industrial Area (BHP NiW, 2019; Figure 1).

**Vegetation Description:** The application area is within the mapped Quindalup Complex which is described as coastal dune complex consisting mainly of two alliances - the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of *Melaleuca lanceolata* (Rottnest Teatree) - *Callitris preissii* (Rottnest Island Pine), the closed scrub of *Acacia rostellifera* (Summer-scented Wattle) and the low closed *Agonis flexuosa* (Peppermint) forest of Geographe Bay (Hedde et al., 1980).

The survey conducted by Biologic Environmental Survey Pty Ltd (Biologic) on 8 March 2019 identified five vegetation types, of which three were recorded within the application area (Biologic, 2019; BHP NiW, 2019);

- **Eg:** *Eucalyptus gomphocephala* low to mid trees over disturbed understorey consisting of introduced grasses, herbs and managed lawns/gardens;
- **EgR:** *Eucalyptus gomphocephala* mid open woodland over *Acacia cyclops*, *Acacia xanthina* and *Spyridium globulosum* scattered tall over *Rhagodia baccata* low open chenopod shrubland with introduced grasses and herbs; and
- **Esp:** *Eucalyptus gomphocephala*, *Eucalyptus camaldulensis* and other naturalised low to mid trees over varying understorey consisting of native (*Melaleuca lanceolata*, *Callitris preissii*) and non-native (*Schinus terebinthifolia*) shrubs and introduced grasses and herbs.

\*denotes a weed species.

**Vegetation Condition:** Degraded: Basic vegetation structure severely impact by disturbance; scope for regeneration but not to a state approaching good condition without intensive management (Keighery, 1994).

To

Completely Degraded: The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs (Keighery, 1994).

**Soil and Landform Type:** The application area is mapped within the Quindalup South Qf3 Phase, described as:

- Relict foredunes forming a plain which is topographically lower than Qf2 with prominent ridges and swales. Swamps frequently occupy the swales. Deep calcareous sands with variable organic matter (Schoknecht et al., 2004).

**Comment:** The local area considered in the assessment of this application is defined as a 10 kilometre radius around the perimeter of the application area.

The vegetation condition was determined from the flora and vegetation survey conducted in 2019 (Biologic, 2019).

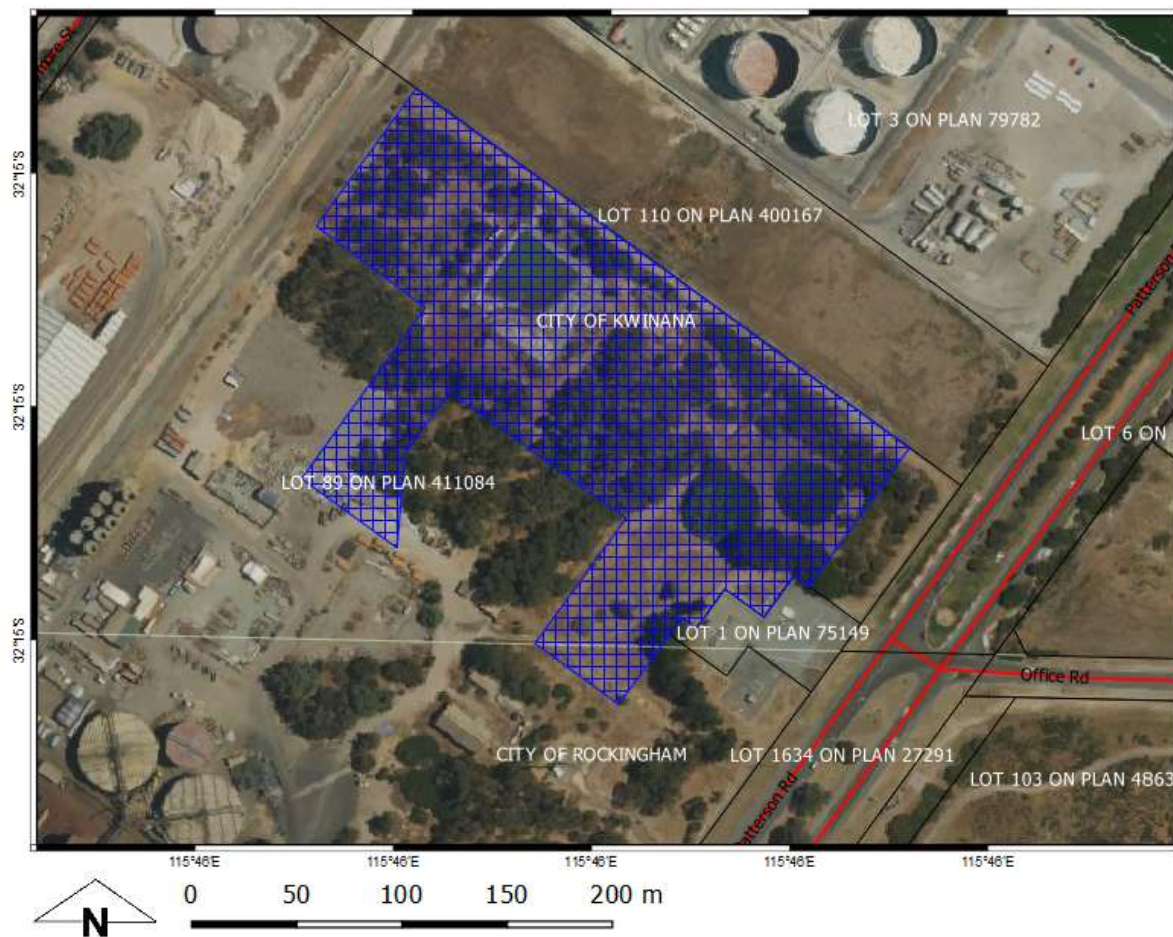


Figure 1: Map of application area (cross-hatched blue)

### 3. Minimisation and mitigation measures

The applicant provided the following avoidance and mitigation measures (BHP NiW, 2019):

- Alternatives for this project were considered, including utilising the existing pond facilities at Baldvis. However, it was determined that the construction of a storage pond at the Kwinana site would allow for more effective site water management, with the process liquors being easily accessible and available to be reutilised, during the major plant shut down.
- The area within the KNR site is highly utilised and largely taken up with the existing process facilities, laydown areas, buildings and other supporting infrastructure. There is limited available open areas of sufficient size for the construction of a storage pond required for the shutdown. The proposed location of the effluent storage pond is one of the last open areas of the site which could accommodate a pond of this size without impeding on any existing infrastructure or essential process areas of site. The pond location and size design were modified to avoid, where practicable, clearing of remnant vegetation and potential black cockatoo habitat trees (>500 millimetres diameter at breast height).

#### 4. Assessment of application against clearing principles

##### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

###### Proposed clearing is not likely to be at variance to this Principle

The clearing permit application area is located within the Interim Biogeographic Regionalisation for Australia (IBRA) Swan Coastal Plain Bioregion. This bioregion includes urban developments associated with the city of Perth, and is dominated by woodlands of *Banksia* and tuart on sandy soils, sheoak on outwash plains, and paperbark in swampy areas (CALM, 2002).

As outlined in Section 2, the application area is located within the mapped Quindalup Complex. The reconnaissance flora and vegetation survey conducted over the application area on 8 March 2019 identified three vegetation types occurring within the application area, including Eg, EgR and Esp. Only one of these vegetation types, EgR, is described as having a natural structure. However, this vegetation type was still determined to be in a degraded (Keighery, 1994) condition, as it lacked key elements such as understorey shrubs, native herbs and grasses (Biologic, 2019). The remaining vegetation types were identified as being in a completely degraded (Keighery, 1994) condition (Biologic, 2019).

According to available databases, three Threatened flora species and ten Priority flora species have been recorded within the local area (Western Australian Herbarium, 1998–). While some of these flora species have been recorded in similar soil types as mapped over the application area, the field survey did not record any flora species of conservation significance. It is noted that the application area does not contain suitable habitat for any flora species of conservation significance based on the completely degraded to degraded (Keighery, 1994) condition, minimal understorey which consists mostly of introduced species, and continued exposure to threatening processes associated with being located within the KNR. The field survey identified 50 flora species from within the KNR, of which 28 are introduced. The floristic diversity within the application area is low and not representative of what is expected from remnant vegetation in good or better condition along the Quindalup dunes south of Perth (Biologic, 2019).

Three of the species recorded from the survey are listed as Weeds of National Significance (WoNS) and/or a Declared Plant Pest (DPP) under Section 22 of the *Biosecurity and Agriculture Management Act 2007*. All three species were recorded from within the application area. Potential impacts to biodiversity near the Kwinana Industrial Area as a result of the proposed clearing may be minimised by the implementation of weed and dieback management practices.

According to available databases, 412 terrestrial fauna species have been recorded within the local area, of which 58 fauna species are of conservation significance comprising 14 threatened fauna species, 14 priority fauna species, 2 specially protected fauna species and 28 fauna species protected under international agreement (Department of Biodiversity, Conservation and Attractions, 2007–). A level 1 fauna survey and black cockatoo habitat assessment was conducted on 8 March 2019 along with the flora and vegetation survey, and a total of seven species of vertebrate fauna were recorded, of which one is of conservation significance, Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (Biologic, 2019). Based on this, the application area does not support a high level of faunal diversity within the local area.

According to available databases, eight ecological communities of conservation significance are mapped within the local area. The application area is located within the buffer of the 'Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain' threatened ecological community (TEC) listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). However, given the condition of the vegetation within the application area and the lack of structure, the application area is not considered to be representative of this TEC.

Given the application area is mostly in a degraded (Keighery, 1994) condition, and lacking in understorey shrubs, native herbs and grasses, with more weed species than native flora species, the application area does not comprise a high level of biological diversity.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

##### (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

###### Proposed clearing is not likely to be at variance to this Principle

As discussed in Principle (a), 58 fauna species of conservation significance have been recorded from the local area (Department of Biodiversity, Conservation and Attractions, 2007–). Of these, none have been recorded from within the application area. It is noted that the local area contains coastal habitats, therefore many avian species can occur as regular migrants, occasional visitors or vagrants.

The level 1 fauna survey identified a single broad fauna habitat over the application area, rehabilitated woodland habitat, which comprised a mosaic of scattered eucalypt species, predominantly Tuart (*Eucalyptus gomphocephala*, and Athel Tree (*Tamarix aphylla*) trees over mixed understorey, often dominated by sparsely distributed patches of small to medium shrubs or low introduced grasses and herbs on sandy plain (Biologic, 2019).

This fauna habitat type is heavily degraded due to historic and ongoing disturbances related to the KNR. Although the application area is located adjacent to remnant native vegetation to the south, east and west, the application area is isolated from surrounding habitats by physical barriers (major roads, fences and industrial sites) that surround the KNR. These physical barriers limit the ecological linkage and ability of ground dwelling fauna species from dispersing into the application area. Furthermore, the field survey identified red fox dens and rabbit warrens within the KNR, indicating that these introduced species are likely to be residents and impact upon other native species that may have previously resided within, or attempted to move into the application area from surrounding areas (Biologic, 2019).

The field survey recorded Carnaby's Cockatoos flying over the application area, however this species did not land or use any habitats within the application area (Biologic, 2019). The black cockatoo habitat assessment identified potential foraging habitat for all three black cockatoos and numerous tall trees that provide opportunities for roosting. The foraging quality of the application area was originally scored 'Quality' for Carnaby's Cockatoo and 'Low' quality for the Forest Red-tailed Black Cockatoo and Baudin's Cockatoo, however the actual score for Carnaby's Cockatoo is considered to be lower given the degraded condition of habitat observed and lack of past or recent foraging evidence (Biologic, 2019). Given this, the foraging quality of the application area is scored as 'Low' for all three black cockatoo species (Biologic, 2019).

A total of 48 potential breeding trees (trees with >500 millimetres diameter at breast height (DBH)) were recorded during the survey, of which five contains hollows (six hollows in total). However, these hollows are not considered suitable for black cockatoos based on the hollow entrances being too small and the orientation of the hollow (Biologic, 2019).. One potential breeding tree will be removed as part of the proposed clearing (BHP NiW, 2019), however this tree does not contain any hollows (Biologic, 2019).

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Proposed clearing is not likely to be at variance to this Principle**

According to available databases, three threatened flora species have been recorded in the local area, including *Caladenia huegelii*, *Diuris micrantha*, and *Drakaea elastic* (Western Australian Herbarium, 1998–). As discussed in Principle (a), none of these species were recorded during the survey or identified as potentially occurring within the application area based on the highly disturbed nature of the application area (Biologic, 2019).

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**

**Proposed clearing is not likely to be at variance to this Principle**

According to available databases, the application area is mapped within the buffer of the 'Woodlands over sedgeland in Holocene dune swales of the southern Swan Coastal Plain' TEC.

This mapped TEC is located approximately 830 metres from the application area.

The three vegetation types recorded within the survey area all exhibit a highly altered structure that does not represent native vegetation in good or better condition (Biologic, 2019), therefore the application area is not considered to be representative of this or any other TEC. The removal of up to 2.5 hectares of native vegetation in a completely degraded to degraded (Keighery, 1994) condition, located within an existing industrial area is not likely to impact on this TEC or any other ecological community of conservation concern.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Proposed clearing is not likely to be at variance to this Principle**

The application area is located within the Swan Coastal Plain IBRA Bioregion, which has approximately 38 per cent of its pre-European vegetation extent remaining (Government of Western Australia, 2019a), and within the mapped Quindalup Complex, which retains approximately 60 per cent of its pre-European extent (Government of Western Australia, 2019b).

The local area retains approximately 34 per cent native vegetation.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750 (i.e. pre-European settlement) (Commonwealth of Australia, 2001). This is the threshold level below which species loss appears to accelerate exponentially at an ecosystem level. Noting the IBRA Bioregion, mapped vegetation complex and the local area retains over 30 per cent pre-European vegetation extent, the application area is not considered to be within an extensively cleared landscape.

Therefore, the application area does not represent a significant remnant of native vegetation in an area that has been extensively cleared.

**Table 1: Vegetation extents**

	Pre-European extent (ha)	Current extent (ha)	% remaining*	Current extent in all DBCA managed land (ha)	% Current Extent in all DBCA managed land (proportion of Pre-European extent)
<b>IBRA Bioregion:*</b>					
Swan Coastal Plain	1,501,221	579,813	38	222,916	14.85
<b>South Coastal Plain vegetation complex:**</b>					
Quindalup Complex (55)	54,573	33,011	60	5,994	10.98

\*Government of Western Australia. (2019a)

\*\*Government of Western Australia. (2019b)

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Proposed clearing is not likely to be at variance to this Principle**

According to available databases, there are no watercourses or wetlands within the area proposed to clear. The closest wetlands occurs over 1,500 metres east of the application area.

Vegetation associations recorded within the application area are not considered to be growing in, or in association with, an environment associated with a watercourse or wetland (Biologic, 2019).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

**Proposed clearing is not likely to be at variance to this Principle**

The majority of the application area has been mapped within the following soil type (Schoknecht et al., 2004):

Land Degradation Risk Category	EnvGeol S8 Phase: Sand - very light grey at surface, yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin
Water Erosion	<3% of map unit has a high to extreme water erosion risk
Wind Erosion	30-50% of map unit has a high to extreme wind erosion risk
Waterlogging	3-10% of map unit has a moderate to very high waterlogging risk
Flooding	<3% of the map unit has a moderate to high flood risk
Salinity risk	30-50% of map unit has a moderate to high salinity risk or is presently saline

The application area has a 30 to 50 per cent of high to extreme wind erosion risk and moderate to high risk of salinity. Given the condition of the application area, and the location within an existing industrial area, the proposed clearing is not likely to cause appreciable land degradation.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.**

**Proposed clearing is not likely to be at variance to this Principle**

The application area does not occur within any conservation areas. The closest conservation area is an un-named reserve located approximately 2,571 metres south east of the application area. Given the distance, and the location of the application area within an existing industrial area, the proposed clearing is not likely to have an impact on the environmental values of any adjacent or nearby conservation areas.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**

**Proposed clearing is not likely to be at variance to this Principle**

There are no Public Drinking Water Source Areas within or in close proximity to the permit application area. The application area is not located within any proclaimed surface water areas, but is located within the Cockburn Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914*.



Groundwater salinity within the application area is mapped as 500 to 1,000 total dissolved solids, milligrams per litre. This level of groundwater salinity is classified as 'fresh'. Given the vegetation within the application is in a completely degraded to degraded (Keighery, 1994) condition and occurs within an existing industrial area, the proposed clearing is not likely to cause salinity levels to alter within the application area, or surrounding areas.

As discussed in Principle (f), there are no wetlands or watercourses intersected by the application area. Given that the application area does not contain any areas of surface water, the proposed clearing is not likely to degrade the quality of surface water.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

**Proposed clearing is not likely to be at variance to this Principle**

Less than three per cent of the mapped soil unit has a moderate to high flood risk, and 3 to 10 per cent of the mapped soil unit has moderate to very high waterlogging risk (Schoknecht et al., 2004). Based on this relatively low risk of flooding and waterlogging, the proposed clearing is not likely to cause or exacerbate, the incidence or intensity of flooding.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**Planning instruments and other relevant matters.**

No Aboriginal Sites of Significance have been mapped within the application area. It is the applicant's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

The clearing permit application was advertised on the Department of Water and Environmental Regulation website on 30 April 2019 with a 21 day submission period. No public submissions have been received in relation to this application.

It is noted that the BHP NiW will require a licence amendment to the current Works Approval for the effluent storage tanks, and this application to amend will be submitted shortly. BHP NiW undertook a pre-application scoping meeting with the DWER Regulatory Services - Process Industries team, and no issues are expected for this licence amendment (DWER, 2019).

A Development Approval (DA9426) has been applied for with the City of Kwinana.

It is noted that the reconnaissance flora and vegetation survey was outside of the optimal survey period (i.e. Spring) for the Swan Coastal Plain, however, the vegetation has been highly disturbed, so timing is unlikely to have been a significant constraint on the survey outcomes. Due to the timing of the survey (March 2019), many of the flora, including non-native species, were not flowering or fruiting. Although the flora component of the field survey was undertaken out of season, the scope and level of disturbances (historic clearing, weeds, rubbish, operational refinery) within the survey area ensured that the field survey was adequate (Biologic, 2019).

**5. References**

- CALM (2002). A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Biologic Environmental Survey Pty Ltd (Biologic) (2019). Kwinana Nickel Refinery, Flora, Vegetation and Fauna Assessment. Report for BHP Billiton Nickel West Pty Ltd, prepared by Biologic, April 2019.
- BHP Billiton Nickel West Pty Ltd (BHP NiW) (2019). BHP Kwinana Nickel Refinery Native Vegetation Clearing Permit Supporting Document for the Effluent Storage Pond Project Lot 89 DP 411084, Patterson Road, Kwinana Beach WA 6167. Report prepared by BHP Billiton Nickel West Pty Ltd, April 2019.
- Commonwealth of Australia (2001). National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Department of the Environment and Energy (DotEE) (2016). *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (s 266B). Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community.
- Department of Water and Environmental Regulation (DWER) (2019). Advice received from DWER Regulatory Services – Process Industries Branch on 23 May 2019. (DWER Ref A1790990)
- Government of Western Australia. (2019a). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>.
- Government of Western Australia. (2019b). 2018 South West Vegetation Complex Statistics. Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Hedde, E. M., Loneragan, O. W., and Havel, J. J. (1980). Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.
- Keighery, B.J. (1994). Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Schoknecht, N., Tille, P. and Purdie, B. (2004). Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs' Resource Management Technical Report No. 280. Department of Agriculture.
- Western Australian Herbarium (1998–). FloraBase—the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/>. Accessed June 2018.

**GIS Databases:**

- Aboriginal Sites of Significance
- DPaW Tenure
- Groundwater salinity
- Hydrography, hierarchy
- Hydrography, linear
- SAC Bio Datasets